

20-8455



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D2741

Job Sheet 185365



Part No: D2741

Job Qty: 40 ea

Part Name: Replacement Blade



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 10/25/18

Job Tracking No:

Due Date: 11/30/18

Created By: Jesse White

Type: Stock

Description:

Note: DWG REV E IPP Rev: D 00.11.15 Removed P/O turning - in house process EC IPP Rev: E 06-03-20 As Per
Rev C JLM IPP Rev: F

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	40 Ea	11/30/18	11/30/18	0.00	0.00	Start Up Machining-1		11/11/20
100	Bandsaw	40 pcs	11/30/18	11/30/18	0.00	3.11	Bandsaw1		"
110	CNC Vertical Machining	40 pcs	11/30/18	11/30/18	0.00	27.45	HAAS1-2		"
130	QC	40 pcs	11/30/18	11/30/18	0.00	0.00	QC8 Machining-1		7/18/11/20
140	Small Fab	40 pcs	11/30/18	11/30/18	0.04	0.68	Small Fab-2		SB DAS
150	QC	40 pcs	11/30/18	11/30/18	0.00	0.00	QC5		38
160	Outsource	40 pcs	11/30/18	11/30/18			ATL002-VC Mebor-5		DEC 18-11-2018
170	Packaging	40 pcs	11/30/18	11/30/18	0.00	0.00	Packaging2		DEC 18-11-2018
180	QC	40 pcs	11/30/18	11/30/18	0.00	0.00	QC6		38
190	HandFinish	40 pcs	11/30/18	11/30/18	0.00	2.47	HandFinish4		DEC 18-11-2018
200	Powdercoat	40 pcs	11/30/18	11/30/18	0.00	1.02	Powdercoat2		DEC 18-11-2018
210	QC	40 pcs	11/30/18	11/30/18	0.00	0.00	QC3		JAN 15 2019
220	Packaging	40 pcs	11/30/18	11/30/18	0.00	0.00	Packaging3-1		JAN 15 2019
230	QC21-SA	40 Ea	11/30/18	11/30/18	0.00	0.00	QC21		JAN 15 2019

Part Op 100 - Cut blanks 13.850" long +0.063" -0.000"

Descriptions: 110 - 1-Machine per folio FA108

140 - 1-Debur

160 - Issue P/O: 041810

170 - Ensure Test report or Certification attached

190 - clean with wash & wipe to remove oil

200 - START TIME: 8:45

O.T. 4:00° FINISH 9:10

M 138951

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M4130NB0.500X03.000	4130 Bar 0.500 X 3.00	46.1640 ft (1.1541 ea)	90-Start up Operation	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	M4130NB0.500X03.000	46	47	0

P.T.O.

Part Specifications					
Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Blade	1.500Inches $\pm$ 0.010	1.510 1.490		
2	Blade	0.715Inches $\pm$ 0.010	0.725 0.705		
3	Blade	0.516Inches $\pm$ 0.008 - 0.001	0.524 0.515	Diameter	
4	Blade	2.000Inches $\pm$ 0.030	2.030 1.970		
5	Blade	13.750Inches $\pm$ 0.010	13.760 13.740		
6	Blade	1.060Inches $\pm$ 0.012 - 0.001	1.072 1.059	Diameter	
7	Blade	0.150Inches $\pm$ 0.010	0.160 0.140		
8	Blade	2.930Inches $\pm$ 0.030	2.960 2.900		
9	Blade	0.375Inches $\pm$ 0.010	0.385 0.365		
10	Blade	0.250Inches $\pm$ 0.030	0.280 0.220		
11	Blade	0.250Inches $\pm$ 0.030	0.280 0.220		

Plex 10/25/18 12:55 PM dart.white.jesse



Container No: S129315



Part: D2741

Job No: 185365

Serial No/Batch: S129315

Revision:

Inspector:

Exp Date:

Instructions: Various STC's

DART Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 813 632-6288
Email: sales@dartaero.com
www.dartaerospace.com

Date: 11/20/16



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041810**

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO041810
PO Date: 11/22/18
Due Date: 12/17/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Tsimiklis, Chrisoula
Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments: ** Please confirm ETA once parts are evaluated **

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	185365	D2741	Issue P/O: _____ Harden material as per Dwg D2741 Min. Ultimate Tensile Strength = 152 ksi (34-40 HRC) Min. Yield Tensile Strength = 141 ksi Test report or Certification required **Sand blast parts** *** ATTN : DO NOT ADD OIL AFTER SANDBLAST ***	Firmed	-	12/17/18	40 pcs	0 pcs	40 pcs	\$18.1025/pcs	\$724.10
Grand Total:											\$724.10

~~DEC 20 2018~~
40 x DEC 21 2018
Missing

05
2

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
332294	1	133272

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT / Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À / Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
41810 ✓		4130	2018/11/23	CLIENT

QUANTITÉ Quantity	No. PIÈCE Part No.	NOM DE LA PIÈCE Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
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40 D2741 ✓

BLADE

(40) D2741 JOB 185365

Missing

138,

1 BOITE DE BOIS

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
BOITE DE BOIS	1	

certificat

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 40

POIDS EXPÉDIÉ / Weight Shipped : 138,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

APPROUVE

certificat

QUANTITÉ EXPÉDIÉE / Quantity Shipped: 40

POIDS EXPÉDIÉ / Weight Shipped : 138,00

Signature:

Date:

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
332294	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
41810	N/A	4130		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

SEL HARDEN

HARDEN AND TEMPER

SAE AMS 2758/1 REV.F

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	34 - 40 HRC	40 (907)	38 - 40 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
40	138	D2741 BLADE (40) D2741 JOB 185385 1 BOITE DE BOIS

COMMENTAIRES / comments

ODEZ

APPROUVÉ par / Approved by:

DATE: 2018-12-11

Pierre Piché
Chief Inspector



APPROUVÉ

METCOR INC.

660 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450-491-5454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL ORDER	CHARGEUR ISSUE
332294	1

CLIENT / client: 215
DART AEROSPACE
1270 ABERDEEN
HAMPSHIRE

ON K6A 1K7

LIVRE A / supplied to:
DART AEROSPACE
1270 ABERDEEN
HAMPSHIRE

ON K6A 1K7

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'ŒUVRE prime contractor	PROGRAM
41810	N/A	4130		

SPÉCIFICATIONS DU PROCÉDÉ processing specifications

SEL HARDEN
HARDEN AND TEMPER
SAS AMS 2750/1 REV F

EXIGENCE / requirement	SPÉCIFICATIONS / specifications	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	34 - 40 HRC	40	38 - 40 HRC
		(50T)	

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
40	138	D2741 BLADE (40) D2741 JOB 186385 1 BOÎTE DE BOIS

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2018-12-11

Pierre Piché
Chief Inspector

METCOR
6

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détail

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
332294	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
41810	N/A	4130		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
SEL HARDEN HARDEN AND TEMPER SAE AMS 2759/1 REV.F				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
HARDNESS	34 - 40 HRC	40 (907)	38 - 40 HRC	
TENSILE	152 - 182 KSI	1	180.2 - 180.2 KSI	
Yield	141 KSI MIN	1	METCOR REPORT # 5551 ; MO	
			170.2 - 170.2 KSI	
			METCOR REPORT # 5551 ; MO	
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
40	138	D2741 BLADE (40) D2741 JOB 185365 1 BOITE DE BOIS		

COMMENTAIRES / comments

SALT HARDEN 1575F, 40 MIN
SNAP TEMPER 400F, 2 HRS
TEMPER 875F, 4 HRS
TEMPER 900F, 4 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

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Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

METCOR INC.

BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
332294	1

Client / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

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APPROUVÉ par / Approved by:

Isabel Otero

Isabel Otero

QA Technician

DATE: 2018-12-14





Dec 13, 2018

ASTM E8 / 0.2% OFFSET YIELD / 1" GL.(4d)

Report No. 5551

Test Date 13-Dec-18 **Testing Machine** STM-100KN 0211506

Client DART AEROSPACE
Operator Mustapha Ouhab
Material 4130

PO 41810
W.O. 332294

Part # D2741

Load Cell S/N (TV1110012), Units (LBS)

22480

Crosshead Speed (Inches / min) or Rate 0.5

Displacement Sensor

EZ.1-1 (5286)

Notes Results are in compliance with customer and specification requirements.

Test No	Specimen ID	Diameter (in)	Yield (kpsi)	Tensile (kpsi)	Total Elong (%)	RA (%)
12407	332294-1	0.250	170.2	180.2	16.3	59.0
	Mean	0.250	170.2	180.2	16.3	59.0
	Std Dev					
	Specification (min)		141.0	152.0		
	(max)			182.0		

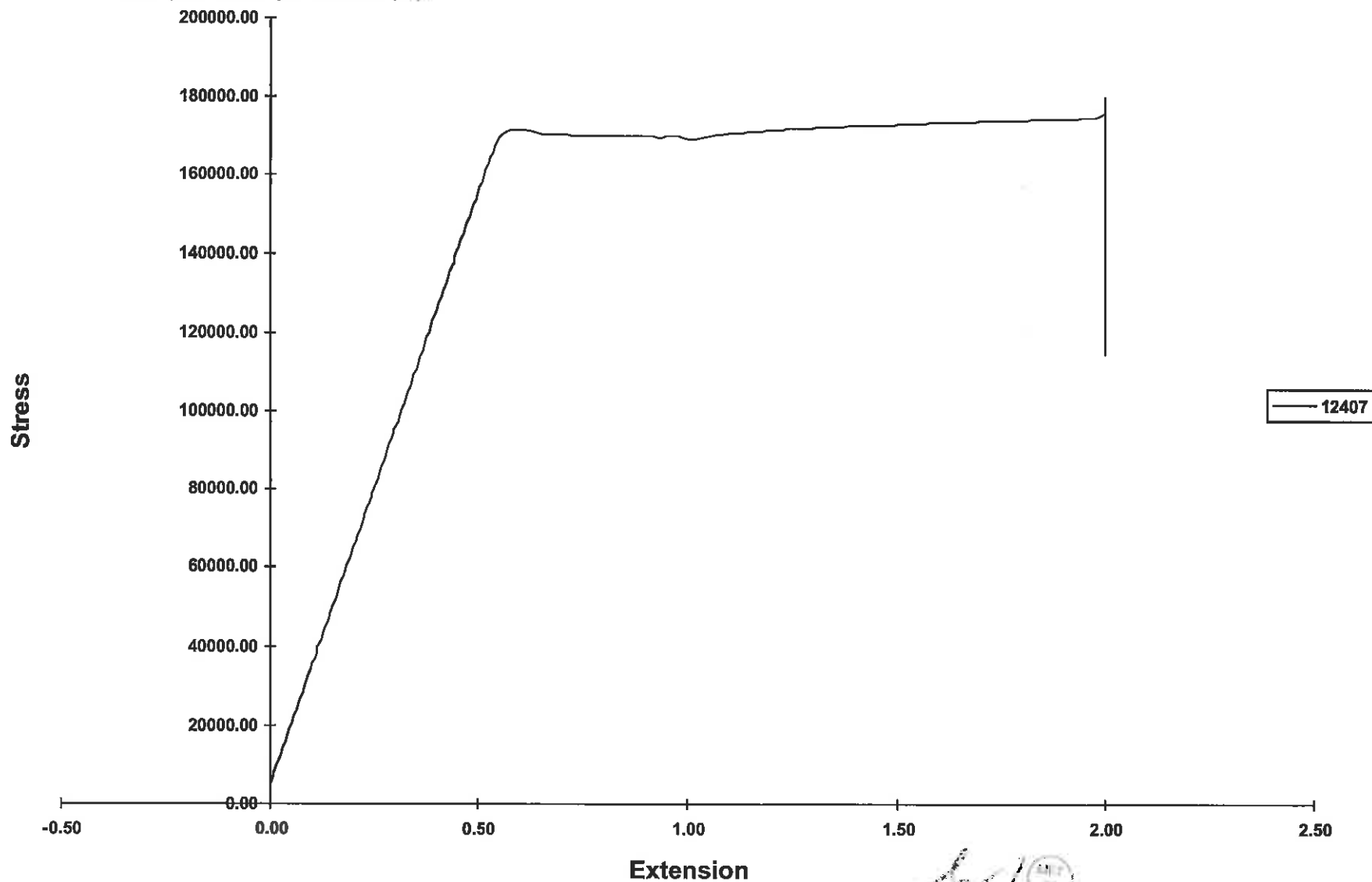
By: 

Date: **Dec 13, 2018**

Test Performed In Accordance with ASTM E 8, Rev. 16a

Report No 5551 **ASTM E8 / 0.2% OFFSET YIELD / 1" GL.(4d)**

Stress (Lbs / Inches ²) vs Extension (%)



DQA: _____ Date: _____

QA Closed: 1R Date: SEP 16 2020

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

Work Order: <u>185365</u> Part No. <u>D2741</u> NCR No. <u>20-8455</u>		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☒</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☒																																																	
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Date: <u>DEC 29 2018</u>		Step #: <u>180</u>		QTY Effective: <u>30</u> 39 <u>39</u>		MRB (QSI042) Approval DAS 9 19-12-20 Completed By: Lead hand / Supervisor Approval Verification 7/19/19 QC / QA Coordinator Approval DAS 9 9-89 19-12-20																																																																	
Description Work Order Deviation - P.O. AND SHIPPING PAPERS SPECIFY QTY 40. ONLY 39 PCS IN BOX. - P.O. SPECIFIES "DO NOT ADD OIL AFTER SAND BLAST". PARTS COVERED IN OIL. - Qty of one was use as sample for the hardness test				Disposition Clean part properly before painting. note will stay on PO and customer will not cover part with oil. NOTE on PO to not add oil after sand blast should be remove. If parts are not covered it oil they will rust.																																																																			
Root Cause <table style="width:100%;"> <tr> <td>Environment ☐</td> <td>No Re-verification ☐</td> </tr> <tr> <td>Design ☐</td> <td>Operator ☐</td> </tr> <tr> <td>Doc/Data ☐</td> <td>Offset/Setup ☐</td> </tr> <tr> <td>Equip/Tooling ☐</td> <td>Supplier ☐</td> </tr> <tr> <td>Handling/Pre ☐</td> <td>Training ☐</td> </tr> <tr> <td>Material ☐</td> <td>Use for Testing ☐</td> </tr> <tr> <td>Internal Transport ☐</td> <td>Poor Information ☒</td> </tr> <tr> <td>Tribal Knowledge ☐</td> <td>Rushing ☐</td> </tr> <tr> <td>LOA ☐</td> <td>Product Improvement ☐</td> </tr> <tr> <td>Substation ☐</td> <td>Process Improvement ☐</td> </tr> <tr> <td>Past Expiry Date ☐</td> <td>Manufacturing Process ☐</td> </tr> <tr> <td>Misidentified ☐</td> <td>Past Due ☐</td> </tr> </table>				Environment ☐	No Re-verification ☐	Design ☐	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☒	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☐	Substation ☐	Process Improvement ☐	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	FAULT CATEGORY <table style="width:100%;"> <tr> <td>Pressure/Forced ☐</td> <td>Temperature/Cure ☐</td> <td>Power Loss/Surge ☐</td> <td>Positioned Wrong ☐</td> </tr> <tr> <td>Bending ☐</td> <td>Set-up ☐</td> <td>Folio/Program ☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Centre Not Concentric ☐</td> <td>BOM/Route ☐</td> <td>Grain ☐</td> <td>Over/Under tolerance ☐</td> </tr> <tr> <td>Cracks ☐</td> <td>Broken/Damage/Defect ☐</td> <td>Weld ☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>Crimp/Kink/Ripple/Wave ☐</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>Wrong Stock Pulled ☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Cuffs ☐</td> <td>Contamination ☐</td> <td>Out of Sequence ☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Crushing ☐</td> <td>Countersink ☐</td> <td>Off-set ☐</td> <td>Drawing ☐</td> </tr> <tr> <td>Heat Treat ☐</td> <td>Cut Too Short ☐</td> <td>Mislabeled ☐</td> <td>Finish ☐</td> </tr> <tr> <td>Wave/Twist in Tube ☐</td> <td>Instructions Incomplete/Unclear ☒</td> <td>Fit/Function ☐</td> <td>Misread ☐</td> </tr> <tr> <td>Marks/Chatter ☐</td> <td>Drill Holes ☐</td> <td>Misaligned/off center ☐</td> <td>Turning Sequence ☐</td> </tr> </table>				Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☒	Fit/Function ☐	Misread ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
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OTHER: _____																																																																							